

CLAIMS:

1. A method for improving the accuracy of photorefractive keratectomy for a laser during ophthalmological surgery upon a patient, comprising:

identifying a photorefractive keratectomy ablation profile topography for the patient's eye;

converting said photorefractive keratectomy ablation profile topography into a targeted energy map based upon a predetermined ablation rate for the laser;

applying a UV power meter in the optical path of the laser beam for measuring of the laser pulse energy;

applying a UV power meter in the optical path of the laser beam for measuring of the laser pulse size;

applying a UV power meter in the optical path of the laser beam for measuring a laser pulse location during performance of an ablation upon the patient's eye;

summing the total energy measured at each location in said ablation;

creating a three-dimensional map of the measured energy delivered during the performance of photorefractive keratectomy upon the patient's eye;

comparing the targeted energy map and the measured energy map; and

for areas of the patient's eye with measured energy below the targeted energy, applying more laser pulses until the measured energy equals the targeted energy.

2. The method of claim 1 wherein the ablation rate is determined by measuring of a size of a convergent or divergent last spot, before and after a known number of laser pulses are conducted.

3. The method of claim 1 wherein the ablation rate is determined by measuring a distance between two intersecting laser beams before and after a known number of laser pulses are conducted.

4. The method of claim 1 wherein the actual energy delivered with each pulse is measured at a last reflective optic component before the laser impinges the cornea of the patient's eye.

Subpart  
cont.

5. The method of claim 1 wherein the ablation rate is determined by measuring central corneal thickness pre-treatment.

6. The method of claim 1 wherein the ablation rate is determined by measuring the number of pulses required to achieve ablation of a corneal intrastromal target of

5 predetermined depth, wherein the intrastromal target is selected from the group comprising a dye, or a Nd:YAG laser lesion.